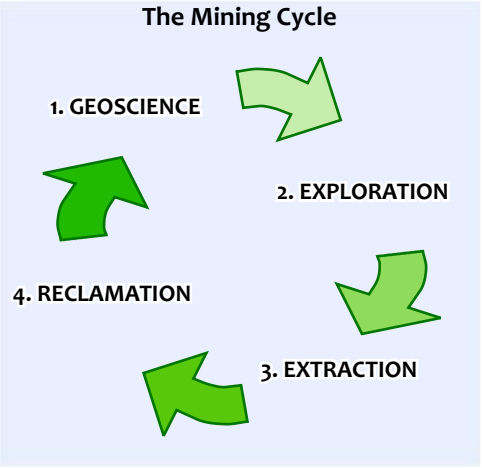
Geoscience & The Mining Cycle

Summer 2008

The Mining Cycle

There are four sequential components of the mining cycle. The first half of the mining cycle (steps 1 and 2) involves undertaking various exploratory-type activities focused on the discovery of an ore deposit. An ore deposit is a deposit of minerals that may be economically feasible to mine. These two steps take place over a large area (tens to hundreds of kilometers) as geologists try to find the ore deposits, which cover a much smaller area.

The latter half of the mining cycle involves extracting the ore deposit from the ground then processing the ore to separate out the desired minerals. After all of the mineral deposit is extracted (step 3), the site is reclaimed back to pre-determined environmental and safety standards (step 4).



Geoscience : The 1st Step to Discovery

Geoscience is the very first step in the mining cycle, and involves collecting information on the rocks beneath our feet, some of which can be hundreds of millions of years old. In mineral exploration, geoscientists apply their knowledge, investigative skills and advanced technology to the surface and sub-surface geology to determine where a occurrence of minerals may be.

Common activities undertaken by geoscientists may include mapping and geophysical and geochemical testing of the surface and subsurface geology.

- **Exploration Mapping** ~ field mapping involves traversing, observing and recording information, and collecting samples of the rocks in an area of interest, in search of rock outcrops containing indications of minerals.
- **Geophysical** ~ geophysics involves using instruments on the Earth's surface that detect properties of the subsurface Earth.
- **Geochemical** ~ geochemistry studies the chemical composition of the Earth, using samples of rocks and soils.

TOP: Helicopter used in flying an airborne geophysics survey.
BOTTOM: Mountain Pine Beetle-killed trees in BC's interior.
Photos courtesy of O. Peterson, Sander Geophysics Ltd.

What is Geoscience BC?

Geoscience BC (GBC) is an industry-led not for profit society focused on undertaking geoscience activities that will help attract mineral and oil and gas investment to British Columbia. In partnership with industry, government, academia, First Nations and communities, GBC supports exploration in BC by collecting, interpreting and marketing applied geoscience data and expertise.

GBC encourages involvement of industry, First Nations and communities in generating project proposals and places a priority on projects that include opportunities for education, training and work experience.

Why Does My Community Need Geoscience?

BC is currently experiencing the largest recorded mountain pine beetle outbreak in North America. This epidemic is causing widespread mortality of pine trees. The prosperity of BC's interior has long been reliant on its timber resources; however, the mountain pine beetle epidemic is expected to diminish opportunities in the forestry sector for several decades. The mineral exploration and mining industry has been identified as having considerable potential to play an important role in the economic diversification of the region.

For more information about Geoscience BC:

Suite 440 - 890 West Pender St
Vancouver, BC
V6C 1J9
604-662-4147

info@geosciencebc.com
www.geosciencebc.com

Geoscience BC has been funded by the BC Provincial Government.